1.0

TECHNICAL REPORT DATA

(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA/ROD/R10-86/009		

4. TITLE AND SUBTITLE	5. REPORT DATE
SUPERFUND RECORD OF DECISION Toftdahl Drums, WA	September 30, 1986 6. PERFORMING ORGANIZATION CODE
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9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report 14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Toftdahl Drum site, approximately 15 acres in area is located four miles east-southeast of Battleground, Washington, and contains three main areas where hazardous substance hauling activities may have occurred: a drum cleaning area; an initial burial trench; and a final drum burial area. The surface of the site slopes downward to the northwest to a spring and a small westerly flowing tributary of Morgan Creek (informally referred to as Toftdahl Creek), or about 350 feet to the southeast directly to Morgan Creek. The general land use in the area is rural residential with approximately 14 homes within an approximately 90-acre area. In the early 1970s, Mr. Toftdahl allegedly had 100 to 200 drums containing unknown amounts of industrial waste, possibly from a plywood manufacturer, delivered to his property. His intent was to clean and resell the drums. Unable to resell about 50 uncleaned drums, he constructed a burial trench about 500 feet from the cleaning location, placed crushed drums into the trench, and covered the trench with mounded dirt. The drums were rediscovered in the mid 1970s when the Davis Family, new owners of a portion of the Toftdahl property, attempted to level the mound over the burial trench. In 1978 or 1982, Mr. Toftdahl removed approximately 38 drums and disposed of them in a local landfill, while approximately 12 drums were reburied in the final burial location. In 1982 the Washington Department of Ecology, notified of the possible presence of buried drums at
(See Attached Sheet)

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Toftdahl Drums, WA Contaminated Media: N/A Key contaminants: N/A	AR 1.0	

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report)	21. NO. OF PAGES
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16. ABSTRACT (continued)

the site, conducted an investigation. Approximately six crushed and badly rusted drums were sampled and stored onsite and a fence was placed around the final drum burial area. In November 1983 the Washington Department of Social and Health Services (DSHS) determined, based on the available sampling data from nearby residential wells, there was no immediate public health hazard in the drinking water. However, DSHS was concerned about the potential for future contamination from the high levels of heavy metals and synthetic organic compounds detected in the soil and drum samples. While several priority pollutants were detected in the RI sampling and analysis program, the concentration of such contamination is very small and could reflect a source(s) not related to this particular drum cleaning and disposal operation. In most sampling cases, the concentration levels could not be reliably differentiated from background values or laboratory-introduced variability. No significant or extensive contamination of surface soils, surface water, or ground water is present at the site. Indicator constituents, defined as having been detected at least one time during investigational sampling include: heavy metals, VOCs, base-neutral organic compounds, cyanides, and PCBs.

The remedial action selected for this site includes a no further action response and semi-annual ground water monitoring for five years, followed by ten years of annual monitoring pending continued funding by the Washington State Legislature.

RECORD OF DECISION
REMEDIAL ALTERNATIVE SELECTION

Site: Toftdahl Drums, Brush Prairie, Clark County, Washington

Documents Reviewed

I am basing my decision primarily on the following documents describing the Toftdahl Drums site.

- Final Report Remedial Investigation for the Toftdahl Drum Site. July 17, 1986

- Summary of Remedial Alternative Selection. Toftdahl Drum Site. August 1986

- Responsiveness Summary dated September 22, 1986

Description of Selected Remedy

- No further action to remediate the site

- Sample and analyze groundwater samples from existing monitoring wells and private residential wells semi-annually for five years, and then annually for ten additional years, subject to funding by the Washington State Legislature.

Declarations

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 CFR Part 300), I have determined that the "no further action" alternative combined with precautionary monitoring of the groundwater by sampling the existing monitoring and private residential wells on or near the site is the appropriate remedy for the Toftdahl Drums site. Because of the lack of significant contamination at the site, and the lack of evidence that contamiantion has migrated from the site, these measures are adequate to protect public health, welfare, and the environment. The Washington Department of Ecology (Ecology) has been consulted and agrees with this remedy. Ecology has also agreed to undertake the precautionary monitoring.

I have also determined that the action being taken is appropriate when balanced against the availability of Trust Fund monies for use at other sites. The "No Further Action"

alternative in conjunction with groundwater monitoring will adequately protect public health, welfare, and the environment.

9-30-86
Date

Robie G. Russell
Regional Administrator
EPA Region 10

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION
TOFTDAHL DRUM SITE
BRUSH PRAIRIE, CLARK COUNTY, WASHINGTON

Site Location and Description

The Toftdahl Drum site is approximately 15 acres situated approximately 4 miles east-southeast of Battleground, Washington. (See Figure 1.) The site lies on a considerably dissected, irregular, rolling upland section of the Troutdale bench, a north-south trending feature about 2 miles wide situated between the Cascade foothills to the east and a broad alluvial plain to the west.

The three main areas of the site where hazardous substance handling activities may have occurred are a drum cleaning area, an initial burial trench, and a final drum burial area. (See figure 2) These areas are situated in a saddle at approximately 500 feet above mean sea level. The land slopes uphill to the east and west. The surface of the site slopes downward to the northwest to a spring and a small westerly flowing tributary of Morgan Creek (informally referred to as Toftdahl Creek), or to the southeast directly to Morgan Creek, about 350 feet away and 200 feet lower in elevation.

The general land use in the area is rural residential, with approximately 14 homes in the approximately 90 acres between NE 189th Street and Morgan Creek. Most of these homes obtain their water from wells which are screened at least 70 feet below the surface. The natural vegetation at the site is dense and consists of a mixture of second-growth coniferous forest and brushy cut-over areas. Access to these homes and to the site is via an unpaved road.

Site History

In the early 1970's, Mr. Toftdahl is alleged to have had delivered to this property 100 to 200 drums containing unknown amounts of industrial waste material, possibly from a plywood manufacturer. His intent was to clean and then sell the drums, but he was apparently unable to sell about 50 drums in which waste residues remained. Mr. Toftdahl subsequently constructed a burial trench about 500 feet from the cleaning location, placed crushed drums into the trench, and covered the trench with mounded dirt.

The drums were rediscovered in the mid 1970's after the new owners of a portion of the Toftdahl property, the Davis's, attempted to level the mound over the burial trench. In 1978 or 1982, approximately 38 drums were removed from the site by Mr.

Toftdahl and disposed of in a local landfill, while approximately 12 drums were reburied in the final burial location.

The Washington Department of Ecology (Ecology) was first notified about the possible presence of buried drums in 1982. In 1983 the Environmental Protection Agency's (EPA) FIT contractor, Ecology and Environment (E&E), conducted a site investigation which included a magnetometer survey, soil and surface water samples, residential well groundwater samples, and a subsurface exploration in the area defined by the magnetometer survey as potentially having buried metal materials. Approximately six crushed and badly rusted drums were sampled and stored on-site. A fence was placed around the final drum burial area. (Area III in Figure 2.) Samples were collected from six of these drums.

In November 1983, the Washington Department of Social and Health Services (DSHS) determined that, based the available sampling data, there was no immediate public health hazard in drinking water taken from residential wells near the site. However, DSHS was concerned that there was an "obvious potential for contamination ..[from] inorganic sources of contamination" as the soil and drum samples did have high levels of both heavy metals and various synthetic organic compounds in the area of E&E's first sampling. Additional samples from several wells taken in February, March, July, and November 1984 and May 1985 by Ecology continued to show no significant degradation of water quality. (See the Current Site Status section below for additional information.)

In May 1984, Ecology nominated the Toftdahl Drum site for addition to the National Priorities List under CERCLA. Also in May 1984, Ecology took soil samples from the area where Mr. Toftdahl's drum cleaning activities were alleged to have occurred. No organic contaminants were detected, and no gross quantities of heavy metals were found in this area.

Using state monies, Ecology's contractor, Dames & Moore, became involved with the site in December 1984 with a site survey and magnatometer survey designed to identify additional potential burial areas. Six potential drum burial locations were identified, including five outside the E&E fenced area. After plans and specifications were prepared by Dames and Moore for drum and contaminated soil removal, Initial Remedial Measure (IRM) work was initiated in June 1985 by Riedel Environmental Services, Inc..

No subsurface drums were found outside the fenced area during the IRM. The five potential drum burial locations were found to generally contain metal debris at or just under the surface. Exploratory digging was also performed where paint chip-looking materials were found. These waste materials were present at widely scattered locations from 0 to 6 inches below the ground

surface.

Twenty exploratory pits were dug inside the fenced area. In total, five crushed drums and parts of additional drums were unearthed and 40 cubic yards of visibly contaminated soil collected. Subsequent analysis demonstrated that none of the material was classifiable as a RCRA hazardous waste by the EP toxicity procedure. All drums, contaminated soils, waste materials and decontamination waters were disposed of off-site at the CSSI hazardous waste landfill at Arlington, Oregon.

As lead agency for the site, Ecology's Remedial Investigation (RI) was performed by Dames & Moore and was designed to: 1) characterized the nature and extent of the contamination present, and 2) provide a data base sufficient for the evaluation of remedial alternatives. The RI was begun in December 1985 and was completed in July 1986.

Current Site Status

The recent environmental sampling and chemical analysis program shows no significant or extensive contamination of surface soils, surface water, or groundwater at the site. While several priority pollutants have been detected in the RI sampling and analysis program, the concentration of such contamination is very small and in most cases could not be reliably differentiated from background values or laboratory-introduced variability. In fact most of the potentially waste related indicator constituents that have been detected have not been consistently detected over repeated sampling events at the site.

Wastes

Pre-RI chemical data for drum/waste samples and adjacent soil samples show that the drum cleaning and disposal activities at the Toftdahl site did introduce some contaminants at the site. Priority pollutants which had been detected at least 1 time in the drum/waste or nearby soil samples were used as indicator constituents in the RI. (See Table 1.) The indicator constituents include metals, volatile organic compounds, base/neutral organic compounds, cyanides, and PCBs.

As waste characterization was based solely on chemical analysis of samples collect at the site, rather than on certain knowledge of the source or nature of the drummed materials, it is possible that other organic compounds found during the RI and earlier sampling may have been waste related. Available information on the source of drums found at the Toftdahl site indicates that they came from a plywood manufacturing plant. The chemical profile shown by the waste analyses is consistent with paint sludge wastes. Many plywood operations use paints for marking the edges of plywood sheets to indicate type and grade.

The concentration of contaminants in the laboratory analyses of the wastes and soils collected from the site near these wastes showed that they were not RCRA hazardous wastes nor Ecology dangerous wastes using both the EP toxicity test and the Ecology bioassay test.

Some white cake-like material similar to that found in and near drums on the site is still visible at several scattered locations on the site. These materials look like paint chips. The Ecology project manager has described the density of these "paint chips" as about what would land on a neighbor's lawn if one's house had been scraped. As noted above, none of these materials are RCRA hazardous wastes.

Soils

After the IRM was completed, RI samples from the top foot of soil were taken from the suspected drum cleaning area, the alleged initial drum burial area, the final drum burial area, and a designated background area. Ecology had earlier taken samples from the alleged drum cleaning area. Tables 2, 3 and 4 summarize the results.

These tables show no significant inorganic contamination in the soil. The only significant concentrations of organic compounds are non-priority pollutant, tentatively identified compounds at the several thousand parts per billion (ppb) levels. These appear to be primarily hydrocarbons and are probably related to traffic on the dirt road rather than to site contamination from drum disposal activities. A few common solvent and phthalate organic compounds were detected at low ppb concentrations. The EP toxicity test results show that none of the soils could be classified as hazardous waste by that test.

Surface Water

Analysis of water samples from Toftdahl Creek identified contaminants which are consistent with minor contamination from surface runoff; distinguishing such minor effects from normal variability between sites, geochemical influences and laboratory and sampling errors cannot be done with assurance. Morgan Creek does not appear to have received contaminants from the site.

The upstream Morgan Creek sampling location had the highest zinc concentration, and had marginally higher concentrations of the other inorganic parameters and phenols than the downstream Morgan Creek sampling location.

For inorganic waste constituents other than zinc, Toftdahl Creek has generally had higher maximum concentrations than Morgan

Creek. Assuming a hardness of 50 mg/l, three of these inorganics exceeded the freshwater aquatic ambient water quality criteria: cadmium with a maximum concentration of 3 ppb, though cadmium was not even detected in 5 out of the 7 sampling events at Toftdahl Creek; lead with a maximum concentration of 23 ppb, though lead was not detected in 4 sampling events; and copper with a maximum concentration of 20 ppb, though copper was also not detected in 4 sampling events at Toftdahl Creek. Again assuming a hardness of 50 mg/l, water quality criteria for aquatic organisms for cadmium, lead, and copper are as follow: cadmium, 2 ppb for both long and short term; lead, 25 ppb short term and 1.0 long term; copper 6.4 ppb short term and 5.8 ppb long term. Only copper at 5 ppb was found in samples collected in 1986 at the location downstream of the site.

The generally higher maximum concentrations of potentially waste-related inorganic constituents at Toftdahl Creek sampling locations may reflect the unpaired comparisons over time, as Morgan Creek was not sampled on the same dates as those maximums. They may also reflect some natural geochemical or soils differences. If they do reflect movement of Toftdahl site contaminants by ground- or surface water, the magnitude of the effect is quite small.

A total of 14 organic compounds has been detected in Toftdahl Creek. However, only four organic compounds have been detected on more than one sampling event, and of these, only two phthalates have been reported at more than 1 ppb. Both of these phthalates were found in blanks during at least one round of sampling. The two latest rounds of surface water samples have shown no detectable organic compounds in Toftdahl Creek. Again the lack of persistence over time may indicate that most reported results are anomalies of sampling or laboratory procedures. This conclusion is also supported by the generally low concentrations of these compounds reported. No organics other than phenol were detected in any of the Morgan Creek samples.

The areas of alleged drum cleaning and drum burial have very slight topographic slopes and are moderately to well vegetated. These influences tend to restrict surface runoff. However, the soils present at the site have a moderate to high runoff potential due to a reddish brown clay which is present near the surface throughout much of the site. This clay has a vertical permeability of 6.5 x 10-7 cm/sec, which impedes the downward movement of water.

Geology and Hydrogeology

A complex sequence of discontinuous sediments, sedimentary rocks and volcanics underlies the site. Extensive weathering and/or hydrothermal alternation has altered all but a few of the original deposits to clays and silts. Generally, groundwater

occurs in the coarser stratified sand, gravel and clayey gravel zones at various depths. These water-bearing zones occur between thicker sequences of clay and silt.

During construction of the five shallow RI monitoring wells, groundwater was encountered at very variable depths ranging from 6 to 33 feet below ground surface. It was not possible to evaluate the hydraulic connection between the shallow saturated zones, and thus, the potential shallow contaminant migration pathways. It is likely that groundwater occurrences in some of the thin shallow saturated zones is seasonally dependent, as some of the shallow monitoring wells dried up during the RI study period.

Deeper groundwater was encountered at approximately 95 feet and 70 feet below the surface in the two deep monitoring wells. This aquifer is a confined aquifer as the water levels in the deep borings rose to approximately 50 feet below ground level after the water bearing zone was penetrated. Measured groundwater elevations in the deep monitoring and private wells indicate that the hydraulic gradient of the confined aquifer ranges from 0.05 to 0.009, sloping generally to the south. However, as the deeper water bearing strata is discontinuous, there is some uncertainty regarding the hydraulic communication between these units.

Groundwater

Private wells surrounding the Toftdahl site were sampled on nine occasions. A total of 10 residences have been sampled at least once, with one of the 10 served by a water supplier rather than by a private well. These private wells include both upgradient and downgradient directions with respect to groundwater flow from the site. Five shallow monitoring wells and 2 deep monitoring wells were constructed as part of the RI. The shallow monitoring wells were all constructed in areas thought to be downgradient of the site's waste activity areas. All private wells are deep.

Tables 5 and 6 summarize the groundwater chemistry data. It should be noted that while private and RI monitoring well results are displayed separately in these table, upgradient and downgradient well results have not been separated.

Shallow groundwater (which has been sampled only from nearby new monitoring wells, as all domestic wells are deep) appears to have higher concentrations for many parameters than were measured in deeper groundwater samples. The potential for pathways between the relatively less pure shallow groundwater and the deeper groundwater could not be established on the basis of existing data.

A total of 22 organic priority pollutant compounds (plus other tentatively identified compounds) have been detected in groundwater. They have not, however, been persistent and are typically at very low ppb concentrations. Of these 22 organics, nine had been found in the waste constituents. Also, of these 22, only five compounds out of 22 have been detected in more than one sampling. Less than half of the organics have been quantified at levels of 1 ppb or higher, and only two at 5 ppb or higher. These two - bis(2-ethyl hexyl) phthalate and methylene chloride - are both waste indicator constituents, but are also common compounds that are sometimes seen in the blank quality control samples. Also, of these 22, 13 have been found in private wells that are upgradient of the site and are unlikely to be related to the Toftdahl site by any potential surface or ground-water contaminant pathway. The RI's conclusion is that at least part of the data set is an artifact (lab or sampling problem) or the contamination is from an independent source. For example, the one residence that is connected to a water supplier had three organic compounds detected, all on one sampling round. No organics appeared in any other sampling rounds at that residence.

Compared to the regional background values, the maximum ground-water concentrations of the metals at and near the Toftdahl site are almost uniformly higher. This may reflect, in part, the small number of samples included in the regional background data set for some parameters. For example, while aluminum is a possible constituent of paint sludge wastes, it's presence in the drums handled at the Toftdahl site has not been well documented. Hydrothermal alternations of soils and rocks may contribute to higher local levels. The private wells have shown higher maximum concentrations of copper and zinc, which is probably related to their design and construction. For other metals, the concentrations are higher in the shallow monitoring wells than in either the deep monitoring and private wells. However, Table 7 demonstrated that there are no significant violations of drinking water standards in any well for the inorganic waste indicator constituents.

Summary

It is likely that at least a substantial portion of the surface and groundwater sampling results is an artifact of the sampling and analytical program or reflects a source of contaminants not related to the drum cleaning and disposal operation at the Toftdahl site. However, the data is insufficient to entirely eliminate the possibility that one or more contaminants related to waste materials is still present at the site. Whether related or not, the magnitude of the contamination is extremely small and does not exceed any applicable or relevant and appropriate Federal public health or environmental standard and does not appear to be a potential

source for public health risks. There is no information to determine what levels of contamination existed at the site prior to 1983.

Enforcement

No enforcement actions have been taken and none are currently underway. The ownership of the site is in dispute between Mr. Toftdahl and the Davis's. A determination on whether to recover Federal and State past costs will be made at a later time.

Community Relations

Local interest in the site and media coverage of activities has been light and sporadic. Ecology held one public meeting in December 1983 to discuss the test results and possible cleanup actions. Community relations have also consisted of fact sheets and direct communications advising residents when there will be well and water sampling as well as investigation and cleanup activities. Nearby residents have requested and received copies of maps and reports on the test results on wells and streams near the site. The residents' concerns include impacts on property owners who are trying to sell their homes.

Alternative Evaluation

A number of preliminary remedial technologies were listed in the RI as maybe being appropriate for consideration as additions to the actions which have already been taken at the site. These include control of any possible contaminant release by removing any remaining surface waste material and contaminated soil or surface sealing, control of any possible contaminant migration by grading or revegetating bare areas, and monitoring surface and groundwater.

The site currently poses no health hazard to the public. This is because the level of contamination at the site is very low. Testing and analysis show that previous actions have effectively eliminated any threats to the public health, welfare, and the environment. Therefore a Feasibility Study will not be performed at this time.

Recommended Alternative

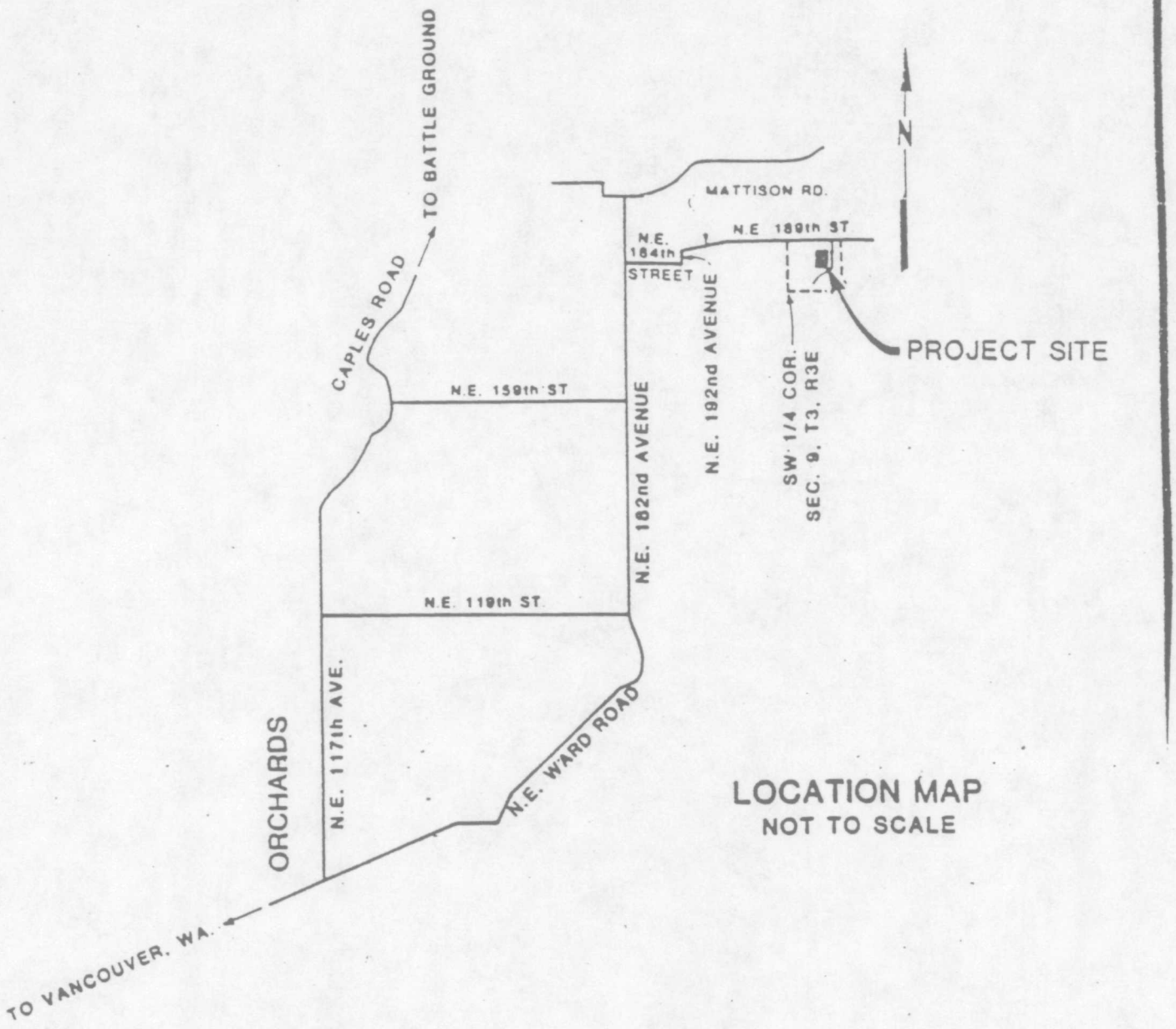
According to section 300.68(i)(1) of the National Oil and Hazardous Substances Pollution Contingency Plan, the appropriate extent of remedy is that cost-effective remedial alternative that effectively mitigates and minimizes threats to and provides adequate protection of public health and welfare and the environment.

The recommended alternative is that no further Superfund remedial action is necessary. Previous Ecology actions have removed drums and any significant quantities of wastes from the site. More than two years of groundwater monitoring have demonstrated that there is currently no threat from the Toftdahl drum site to drinking water quality at the nearby residences. Similarly, there are currently no threats to surface waters from the Toftdahl drum site.

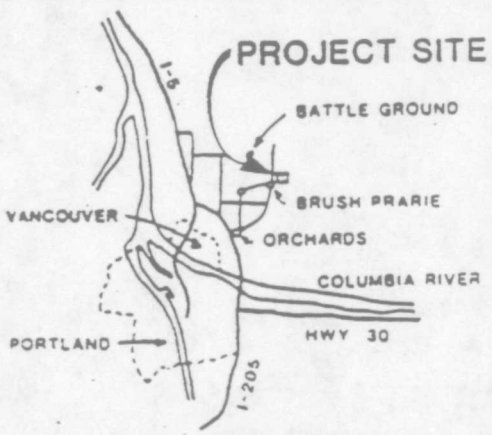
For additional verification, Ecology intends to continue performance monitoring by sampling and analyzing nearby private residential and monitoring wells semi-annually for five years, and then annually for ten additional years, subject to funding by the legislature of the State of Washington. EPA concurs with this precautionary measure. If significant contamination is ever found in these wells, the no further action decision could be reconsidered.

The no further action alternative is consistent with other environmental laws. No RCRA hazardous wastes nor Ecology dangerous wastes are present at the site. Federal drinking water standards are met at the downgradient private wells for all waste indicator constituents. No substances regulated by TSCA have been found at the site.

This site may be recommended for deletion from the National Priorities list as it no longer presents a significant threat to public health or the environment.



LOCATION MAP
NOT TO SCALE



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Site Location Ma

Dames & Moor

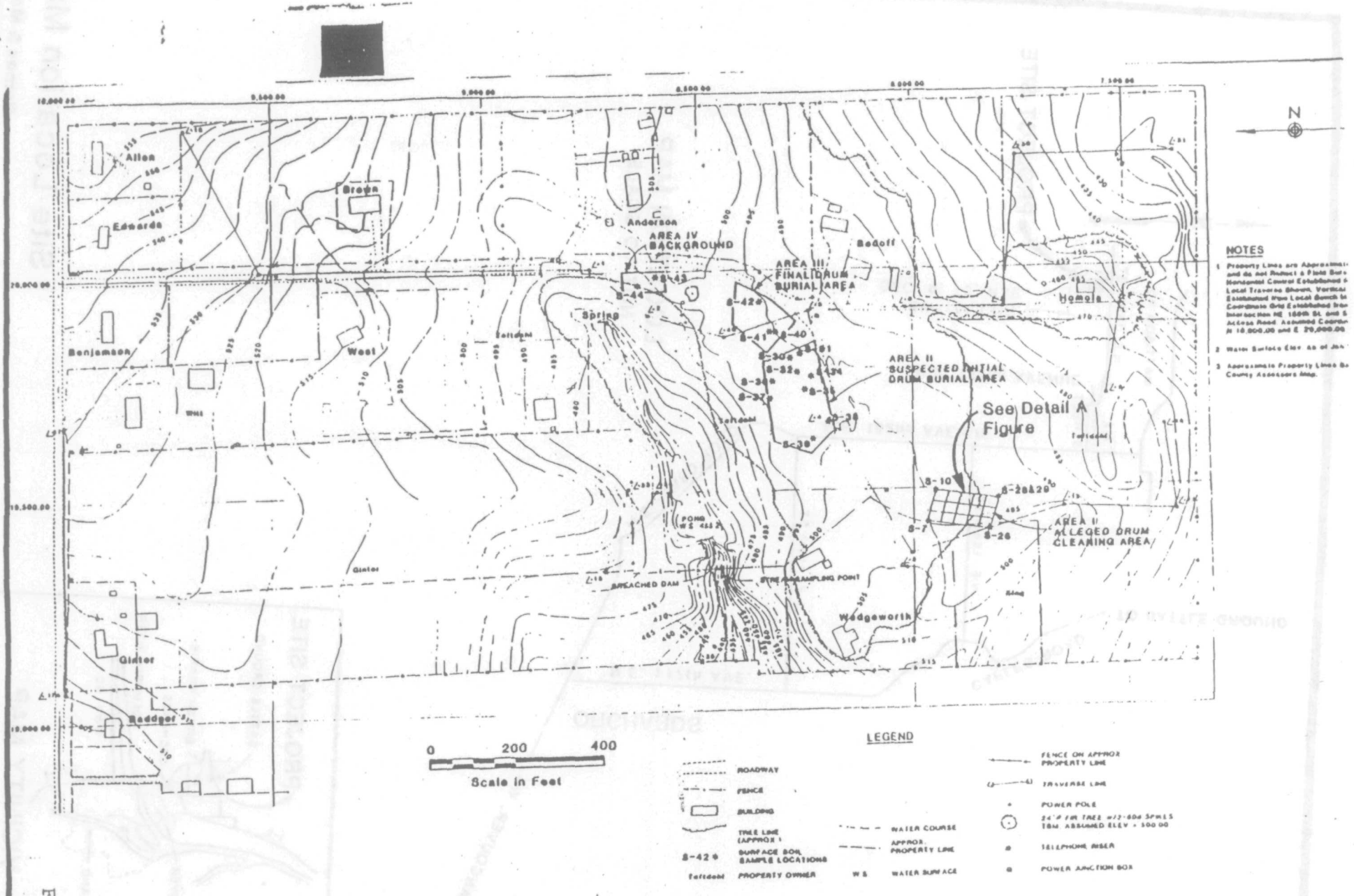

Figure 2.

Surface Soil Sample Location M

Dames & Mo

TABLE 1
WASTE MATERIAL INDICATOR PARAMETERS (a)

Organics	Concentration Range in Wastes (ppm)	
Bis(2-ethyl hexyl)phthalate	b	- 400
Di-n-butyl phthalate	b	- 91
Di-n-octyl phthalate	0	- 15
Benzyl butyl phthalate	0	- 12
Napthalene	0	- 7.1
Phenanthrene	0	- .41
Fluorene	0	- .18
PCB 1254	0	- .41
PCB 1560	0	- .61
Toluene	0	- 44000
Ethyl benzene	0	- 5500
Methylene chloride	0	- .453
Tetrachloroethane	0	- .4
Benzene	0	- 50M
Acetone	0	- 2.2
2-Butanone (MEK)	0	- .42M
4-Methyl-2-pentanone	0	- 1.7
0-Xylene (1,2-dimethyl benzene)	0	- .16M
Inorganics		
Arsenic	0	- 18.6
Cadmium	0	- 3.1
Chromium	0	- 119
Copper	5	- 590
Lead	0	- 1000
Mercury	0	- 115.?
Zinc	25	- 4430
Cyanide	0	- 16.3

(a) Includes (1) those organic compounds that were specifically identified and for which quality control sample blank results were below detection limits, and (2) those inorganics for which sample results were above soil background values. The list of inorganic indicator parameters includes three that are only marginally above background values (arsenic, cadmium, and chromium) and is thus conservative. It is possible that the waste contains forms of these chemicals (or others) that are more mobile than normal background soils; EP toxicity testing of wastes, however, shows detectable leachate values only for chromium (0.14 ppm.)

M designates an estimated value.

? on the mercury value indicates that spectral interference prevented confirmation. The highest value unaffected by interference is 19.4.

Table 2
SUMMARY OF SOILS ANALYSES
INORGANICS PARAMETERS
(in ppm, dry weight basis)

	WDOE Soil Sampling 5/9/84					Dames & Moore Soil Sampling 1/6/86				
PARAMETER	NO. OF SAMPLES ANALYSED	Minimum	Maximum	2nd Maximum	LOCATION OF MAX CONCENTRATION(e)	NO. OF SAMPLES ANALYSED	Minimum	Maximum	2nd Maximum	LOCATION OF MAX CONCENTRATION(f)
ALUMINUM	0	— (c)	—	—	—	6	27,200 (a)	49,700 (a)	45,800 (a)	S-5
ANTIMONY (b)	4	ND (d)	ND	ND	—	6	ND	ND	ND	—
ARSENIC	4	0.1	1.3	0.3	2-B	6	3 (a)	5 (a)	4 (a)	S-6
BARIUM	0	—	—	—	—	6	61	132	122	S-6
BERYLLIUM	4	0.29	0.48	0.38	2-B	6	ND	ND	ND	—
CADMIUM	4	0.02	0.05	0.03	1-B	6	ND	ND	ND	—
CALCIUM	0	—	—	—	—	6	448	1530	941	S-6
CHROMIUM	4	7.5	21.4	13.4	2-B	6	12	22	21	S-5
COBALT	0	—	—	—	—	6	8.4	34	25	S-5
COPPER	4	22	49	41	2-S	6	14	30	27	S-5
IRON	0	—	—	—	—	6	19,200	40,800	37,500	S-5
LEAD	4	6	12	8	1-S;2-S	6	13	17	15	S-4
MAGNESIUM	0	—	—	—	—	6	715	1,140	1,010	S-5
MANGANESE	0	—	—	—	—	6	704	2,270	1,820	S-5
MERCURY	4	0.012	0.082	0.066	2-B	6	ND	ND	ND	—
NICKEL	4	20	40	29	2-B	6	ND	17	ND	S-5
POTASSIUM	0	—	—	—	—	6	444	2,210	848	S-4
SELENIUM	4	ND	0.5	ND	2-B	6	ND	ND	ND	—
SILVER	4	0.01	0.03	0.02	2-S	6	ND	ND	ND	—
SODIUM	0	—	—	—	—	6	99	120	119	S-5
THALLIUM	4	ND	0.1	0.1	1-B;2-S,B	6	ND	ND	ND	—
TIN	0	—	—	—	—	6	ND	18	15	S-3
VANADIUM	0	—	—	—	—	6	49	110	104	S-5
ZINC	4	37	57	42	2-S	6	37 (a)	71 (a)	64 (a)	S-6
CYANIDE	0	—	—	—	—	6	ND	ND	ND	—

(a) These results are flagged as estimates, based on the QA/QC review of the data set by Ecology and Environment, Inc.

(b) The results for antimony were rejected by the Ecology and Environment, Inc. QA/QC review due to low antimony spike recoveries.

(c) — denotes that the parameter shown was not tested for in this set of analyses.

(d) ND denotes that the analysis for this parameter was performed but that it was not detected (at a defined lower limit of detection).

(e) Both shallow (0-12") and deep (approximately 6') samples were obtained and composited from two sampling areas. Six sites were sampled and composited from area 1 (alleged drum cleaning area) and three sites were sampled and composited from area 2 (suspected initial drum burial area). See Figure 4-4 and 4-5. The designations show sample location and depth; for example, 1-S indicates the shallow composited sample in area 1.

(f) All surface soil samples were obtained from area 1 (alleged drum cleaning area). See Figure 4-4 and 4-5).

Table 3
SUMMARY OF SOILS ANALYSES
ORGANIC COMPOUNDS
(in ppb, dry weight basis)

WDOE SOIL SAMPLING
5/9/84

No organic compounds detected

DAMES & MOORE SOIL SAMPLING
1/6/86

CONSTITUENT	MAXIMUM CONCENTRATION	NUMBER OF TIMES DETECTED IN 6 SAMPLES	LOCATION OF MAXIMUM CONCENTRATION(c)
tetrachloroethene (a)	5 J	5	S-4; S-6
trichloroethene (a)	3 J	5	S-2
methylene chloride (a),(b)	67 J	3	S-3
acetone	27	3	S-4
total xylenes (a)	8 J	3	S-4;S-6
bis(2-ethylhexyl) phthalate (a)	48 J	2	S-3
di-n-octyl phthalate (a)	15 J	1	S-3
other tentatively identified compounds:			
number per sample		16 to 20	
total concentration per sample, estimated		7,270 to 17,789	
maximum concentration for one compound per sample, estimated		980 to 2,310	

(a) Reported values are estimates (as indicated by J on lab reports).

(b) Methylene chloride was reported in the method blank at 5 ppb. Two other compounds were also reported in the method blank: fluoranthene at 33 ppb and pyrene at 23 ppb.

(c) All samples were taken from the alleged drum cleaning area

Table 4
DAMES & MOORE SOIL SAMPLING
JANUARY 6-8, 1986
SUMMARY OF EP TOXICITY TEST RESULTS

PARAMETER	NUMBER OF TIMES QUANTIFIED IN 42 ANALYSES (a)	MAXIMUM CONCENTRATION (ug/l)	LOCATION OF MAXIMUM LOCATION (c)	DRINKING WATER STANDARD (ug/l)
ARSENIC	0	ND(b)	--	50
BARIUM	37	288	S-12	1,000
CADMIUM	3	7.8	S-36	10
CHROMIUM	4	12	S-31	50
LEAD	1	18	S-14	50
MERCURY	0	ND	--	2
SELENIUM	0	ND	--	10
SILVER	0	ND	--	50

(a) Including four duplicate analyses.

(b) ND denotes the analyses were performed and the parameter was not detected in any of the EP toxicity tests (at a defined lower limit of detection).

Table 5

GROUND WATER SAMPLES
INORGANIC ANALYSES
DATA SUMMARY: MAXIMUM CONCENTRATIONS (in ug/l: ppb)

PARAMETER	EEI 8/4/83 PRIVATE WELLS	WDOE 11/9/83 PRIVATE WELLS	WDOE 2/8/84 PRIVATE WELLS(e)	WDOE 7/23/84 PRIVATE WELLS (e)	WDOE 11/15/84 PRIVATE WELLS	Dames & Moore January 1986 PRIVATE WELLS	NEW WELLS SHALLOW(f)	NEW WELLS DEEP(g)
ALUMINUM	— (a)	—	—	—	—	29	15,500	835
ANTIMONY	ND (b)	—	3	—	—	ND	ND	ND
ARSENIC	ND	13	6	3	1	ND	ND	ND
BARIUM	—	—	—	—	ND	2	81 J(h)	10 J
BERYLLIUM	ND	ND	ND	—	—	ND	1	ND
BORON	—	—	—	—	—	ND	ND	
CADMIUM	ND	1	0.2	1.6	4	ND	ND	ND
CHROMIUM (c)	7	ND	ND	23	6	ND	23	ND
COBALT	—	—	—	—	—	ND	9	ND
COPPER	27	130	167	98	129	115	25	4
IRON	—	—	—	1080	770	313 (124)(d)	28,230 (45,460)(d)	1,030
LEAD	24	6	60	7	8	ND	12 J	ND
MANGANESE	—	—	—	27	73	12 (12)(d)	175 (240)(d)	26
MERCURY	ND	ND	0.06	0.21	0.54	ND	0.2 J	ND
NICKEL	ND	ND	ND	64	30	ND	21	ND
SELENIUM	ND	1	1	4	3	ND	ND	ND
SILVER	ND	—	ND	—	—	ND	ND	ND
THALLIUM	ND	—	1	—	—	ND	ND	ND
TIN	—	—	—	—	—	ND	ND	ND
VANADIUM	—	—	—	—	—	6.3	37.7	2
ZINC	83	870	6340	252	1774	402	45	6
CYANIDE	ND	ND	4	—	ND	ND	ND	ND
CALCIUM	—	—	—	—	—	11,040	6,234 J	9,327 J
MAGNESIUM	—	—	—	—	—	3,630	3,140 J	3,148 J
SODIUM	—	—	—	—	—	6,535 (10,500)(d)	7,687 J	10,500 J
POTASSIUM	—	—	—	—	—	ND	1,523	ND
NUMBER OF SAMPLES	3	6	9	6	6	4	1	2

(a) — denotes that no analysis for the parameter shown was performed.

(b) ND denotes that an analysis was performed for the parameter shown but that no detectable quantities were reported (at a defined lower limit of detection).

(c) Hexavalent chromium was tested on only one sampling round and only at three shallow monitoring wells installed by Dames & Moore. The hexavalent chromium analyses were performed by a different laboratory than performed the total chromium analyses. The only well at which hexavalent chromium was found was MW5-2A, which was also determined to be affected by grout contamination and therefore is not included in the data summary.

(d) The values shown in parentheses are the maximum iron, manganese, and sodium values reported from separate water quality/water contamination analyses performed by the EPA Manchester Lab. These constitute separate, duplicate analyses for these parameters.

(h) The Anderson water supply is included in these data; that residence is hooked up to a local water system whose source is at some distance from the Tofidahl site and is not potentially effected by any Tofidahl site contamination.

(f) Indicates shallow wells: MW5-4A (data for MW5-1A and MW5-2A deleted as a result of grout contamination).

(g) Indicates deep wells: MW5-1B, MW5-2B.

(h) J indicates that the associated numerical value is an estimated quanity because quanlity control criteria were not met.

Table 5 (Continued)
GROUND WATER SAMPLES
INORGANIC ANALYSES
DATA SUMMARY: MAXIMUM CONCENTRATIONS (in ug/l: ppb)

Dames & Moore
April 1986

PARAMETER	PRIVATE WELLS	NEW WELLS SHALLOW(f)	NEW WELLS DEEP(g)	OVERALL MAXIMUM	PARAMETER
ALUMINUM	61	21,630	2,045	21,630	Al
ANTIMONY	ND	ND	ND	3	Sb
ARSENIC	ND	ND	ND	13	As
BARIUM	2	77 J	20 J	81	Ba
BERYLLIUM	0.1	0.7	ND	0.7	Be
BORON	ND	ND		ND	B
CADMIUM	ND	ND	ND	4	Cd
CHROMIUM (c)	2	37	6	37	Cr
COBALT	ND	12	ND	12	Co
COPPER	71	33	3	167	Cu
IRON	2,088 (1,775)(d)	37,000 (25,220)(d)	3,318	45,460	Fe
LEAD	30	21	ND	60	Pb
MANGANESE	9 (12)(d)	225 (135)(d)	58	240	Mn
MERCURY	ND	3.4	ND	3.4	Hg
NICKEL	ND	20	ND	64	Ni
SELENIUM	ND	ND	ND	4	Se
SILVER	ND	3.3	2.2	3.3	Ag
THALLIUM	ND	ND	ND	ND	Tl
TIN	ND	ND	ND	ND	Sn
VANADIUM	6.7	51.4	9.8	51.4	V
ZINC	427	56 J	8 J	6340	Zn
CYANIDE	ND	ND	ND	4	Cn
CALCIUM	11,360	12,270	12,270	12,270	Ca
MAGNESIUM	3,717	2,004 J	3,717 J	3,717	Mg
SODIUM	6,762 (8,900)(d)	2,295 J	12,910 J	12,910	Na
POTASSIUM	ND	1,434 J	2,823 J	2,823	K
NUMBER OF SAMPLES	4	1	2	44	

Table 6

GROUND WATER SAMPLES
ORGANIC ANALYSES
MAXIMUM CONCENTRATIONS
(in ug/l : ppb)

PARAMETER	ECOLOGY & ENVIRONMENT 8/4/83 Private wells	WDOE 11/9/83 Private wells	WDOE 2/8/84 (a) Private wells	WDOE 5/8/85 Private wells	WDOE 9/19/85 Private wells	B & M January 1986 New Wells Shallow	B & M January 1986 New Wells Deep	B & M January 1986 Private Wells
bis(2-ethylhexyl)phthalate (c)	3.8 (d)	1.8 (d)	18			7 J(g)		
di-n-octyl phthalate (c)	0.2 (d)	0.14 (d)	0.62					
phenanthrene (c)	1.8							
PCB 1260 (c)	0.5							
chrysene	2							
pyrene	1.5							
fluoranthene	1.4	0.84						
benzo(b,k)fluoranthene	1							
benzo(a)anthracene	0.7							
benzo(a)pyrene	0.3							
tentatively identified compounds (f)	58 (2)(a)		10 (2)(a)			10 J		
di-n-butyl phthalate (c)		0.12 (d)	1 N	2				
1,3-dimethyl benzene (c)		3.3						
phenol		0.21						
acenaphthene		0.1 N (g)						
benzyl butyl phthalate (c)			2.9					
benzene			2 N					
1,1,1-trichloroethane (c)				0.2	0.1			
1,1-dichloroethane				0.01				
methylchloride				0.05				
methylene chloride (c)				7				
benzoic acid						14 J		
aldrin								
heptachlor								

(a) Includes replacement samples collected on 2/22/84 and 3/20/84 to complete the analyses for some wells.

(b) See Table 3-2; the values shown include drum contents, wastes (from outside of drums), and adjacent soils.

(c) These compounds are also on the waste constituents list (See Table 3-2).

(d) Also found in a blank analyzed in this round of sampling.

(e) The value in parentheses is the number of different tentatively identified compounds reported (not all necessarily at one sampling location).

(f) The concentration shown is the maximum for any single tentatively identified compound. All values are reported as estimates. In parenthesis is total number of tentatively identified compounds found anywhere (not all at the same well).

(g) Estimated concentration (designated by N, or J for more recent data).

(h) The values for both 1,3- and 1,2- isomers are included. These are tentatively identified compounds for which the reported concentrations are estimates.

... the ... 9/19/85 analyses which included only volatile organics.

Table 6 (Continued)

GROUND WATER SAMPLES
ORGANIC ANALYSES
MAXIMUM CONCENTRATIONS
(in ug/l : ppb)

PARAMETER	B & M April 1986 New Wells Shallow	B & M April 1986 New Wells Deep	B & M April 1986 Private Wells	Maximum Concentration in Wastes (b) (in ug/kg : ppb)
bis(2-ethylhexyl)phthalate (c)	26			400,000
di-n-octyl phthalate (c)				15,000
phenanthrene (c)				410
PCB 1260 (c)				610
chrysene				
pyrene				
fluoranthene				
benzo(b,k)fluoranthene				
benzo(a)anthracene				
benzo(a)pyrene				
tentatively identified compounds (f)	9 J (1)(e)	14 J (2)(e)	9 (1)(e)	
di-n-butyl phthalate (c)				91,000
1,3-dimethyl benzene (c)				160 M
phenol				
acenaphthene				
benzyl butyl phthalate (c)				1,200
benzene				
1,1,1-trichloroethane (c)				200
1,1-dichloroethane				
methylchloride				
methylene chloride (c)				453
benzoic acid				
aldrin	2.12		0.79	
heptachlor	3.85			

TABLE 7

GROUNDWATER INORGANIC CONCENTRATIONS VS. DRINKING WATER STANDARDS

Inorganic Waste Indicator Constituent	Existing Drinking Water Standard (ppb)	Maxmimum Concentration Detected (ppb)		
		Private Wells	Deep Monitoring Wells	Shallow Monitoring Wells
Arsenic	50(a)	13	ND	ND
Cadmium	10(a)	4	ND	ND
Chromium	50(a)	23	6	37
Lead	50(a)	60(c)	ND	21
Mercury	2(a)	.54	ND	3.4(e)
Zinc	5000(b)	6340(d)	8J	56J
Cyanide	200(b)	4	ND	ND

ND - Not detected, with a defined lower level of detection.

J - Estimated concentration.

(a) - These standards are from the current National Interim Primary Drinking Water Regulation.

(b) - These standards are from the Ambient Water Quality Criteria for Human Health.

(c) - The next highest concentration for lead in a private well is 30.

(d) - The next highest concentration for zinc in a private well is 1724.

(e) - The next highest concentration for mercury in a shallow monitoring well is .2J.

September 24, 1986

Responsiveness Summary
Toftdahl Drums Superfund Site

On August 19, 1986, the Washington Department of Ecology (Ecology) began a public comment period on the "Final Report Remedial Investigation for the Toftdahl Drum Site" dated July 17, 1986, and prepared by Dames and Moore; and on EPA's draft Record of Decision, dated August 8, 1986. Ecology's activities during this public comment period included release of a fact sheet and a press release, letters to residents near the Toftdahl site, and placing copies of the above documents in a nearby information repository and in the local health department office. The public comment period was scheduled to close on September 10, 1986; however, at the request of one of the commenters, comments were accepted until September 19.

One letter and one phone comment were received. The phone comment was from (b) (6). The (b) (6) used to live at the Toftdahl site. Mr. (b) (6) was concerned about whether Mrs. (b) (6) 's health problems were caused by the contamination at the site. Mr. Grant submitted written comments (copy attached). Mr. Grant is an attorney for the (b) (6). His primary concern is about the condition of the property prior to 1983 and the health hazards which may have existed at the site prior to EPA and Ecology actions.

In response to these comments, the Record of Decision has more fully summarized the Washington Department of Social and Health Services' 1983 concerns about the site. Also, the Record of Decision has been revised to clearly state that neither EPA nor Ecology have any information from which to evaluate the potential health risks associated with the site prior to 1983. None of the comments affect the remedy selection.

PHOEBE A. BEATTY KINKER
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

TOFTDAHL DRUM SITE, BRUSH PRAIRIE, CLARK COUNTY

August 1986

WHAT CAUSED THE PROBLEM AT THE TOFTDAHL DRUM SITE?

About 1970, Mr.Toftdahl allegedly drained or buried up to 200 drums of paint, glues, and related chemicals on his property at 22033 N.E. 189th Street, Brush Prairie. The illegally disposed drums were probably from a plywood manufacturing plant. Analysis showed that some of the contaminants were similar to paint sludge waste.

The Ecology Department became aware of the site in early 1982 and began to test soil and water for contamination. In late 1982 the landowner removed most of the drums and transported them to a landfill.

WHAT PROBLEMS DID THESE DRUMS CAUSE?

Tests of soils, and ground and surface water in the area occasionally revealed the presence of metals, volatile organic compounds, other organic compounds, cyanides and polychlorinated biphenyls (PCB). However, these chemicals occurred at very low levels and not all soil or water sample locations contained the chemicals consistently.

WHAT HAVE ECOLOGY AND EPA DONE ABOUT THE CONTAMINATION AT THE SITE?

Both Ecology and EPA have been involved with the Toftdahl site. EPA excavated, sampled and stored some crushed and rusted drums, then fenced the drum burial area for safety in 1983. Because of the levels of chemicals in these drums and the uncertainty of the degree of contamination in soil and water, Ecology nominated the site for the National Priority List under the Comprehensive Environmental Response, Compensation, and Liability Act; the federal "Superfund" program. When EPA placed the site on the national priority list, it became eligible for federal "Superfund" money. This enabled Ecology, under an agreement with EPA, to do more tests on soil and water in the area.

In addition, Ecology has removed drums and soil, and disposed of the contaminated materials in a hazardous waste landfill approved under Resource Conservation and Recovery Act requirements.

WHAT WERE THE STUDY RESULTS?

The study, called a Remedial Investigation, revealed the site was free of significant contamination. In addition, there was no evidence that chemicals from the drums had moved off the property.

The pollutants present in soil and water on the site were at very low levels. Most were similar to the normal background levels for the individual chemicals. In some cases, normal variability in the laboratory results could explain the apparent presence of chemical.

IS THERE NOW OR HAS THERE BEEN A HEALTH HAZARD FROM THE PRESENCE OF THESE CHEMICALS?

No. The levels of pollutants from the Toftdahl Drum site did not exceed state and federal public health and environmental standards. In most cases the levels of pollutants were similar to normal background levels.

WHAT IS HAPPENING WITH THE SITE RIGHT NOW?

The Ecology Department and the U.S. Environmental Protection Agency (EPA) are recommending that there be nor further action to cleanup the Toftdahl Drum site. However, Ecology intends to test nearby residential and monitoring wells for contamination periodically.

WHAT IS THE PROCESS FOR MAKING AND IMPLEMENTING THIS RECOMMENDATION?

Because the site is on the National Priority List, EPA must prepare a Record of Decision, which is a formal step in the cleanup process under Superfund. EPA and Ecology are making drafts of the document available for review during a three-week comment period.

After the comment period, Ecology and EPA will evaluate the comments, prepare a "responsiveness summary," then select their final recommendation. The responsiveness summary, which provides decisionmakers with information about the community's preference and concerns and agency responses to those concerns, will be available when EPA announces their final decision on the site.

There will be no comment period for the final decision.

WHAT WILL HAPPEN IF ECOLOGY'S PERIODIC TESTING REVEALS CONTAMINATION?

Ecology and EPA will evaluate any test results showing that pollutants are present in residential and monitoring wells at higher levels than in previous studies to see if additional testing or cleanup is needed.

WHERE CAN I REVIEW THE STUDY RESULTS AND THE DRAFT RECORD OF DECISION?

Review copies of the study results and the draft record of decision are available at the following locations:

Southwest Washington Health District, contact Gary Bickett, 696-8428
Hockinson Post Office
Department of Ecology, Rowesix Office, Lacey

WHO CAN I CONTACT FOR MORE INFORMATION?

If you have any questions about the study results, the record of decision, or the site itself, please call or write Phyllis Baas, 206/459-6286, or Janet Rhodes at 206/459-6501; Hazardous Waste Cleanup Program, Dept. of Ecology, Main Stop PV-11, Olympia, WA 98504.

JOHN SPELLMAN
Governor

ALAN J. CASS
Secretary

STATE OF WASHINGTON

DEPARTMENT OF SOCIAL AND HEALTH SERVICES

Olympia, Washington 98504

November 18, 1983

TO: John F. Spencer
Deputy Director
Department of Ecology PV-11

FROM: John A. Beare, M.D., M.P.H.
Director
Division of Health ET-21

SUBJECT: HAZARDOUS WASTE SITE IN CLARK COUNTY

As you know, both your staff and DSHS staff are dealing with the recently discovered Toftdahl/(b) (6) hazardous waste site in Clark County. The Southwest Regional Office of DOE has reacted in a most expeditious manner to the situation. I would like to thank your staff for providing us with the available water quality data. The DSHS Division of Health has evaluated the confirmed handwritten data from the EPA Manchester Laboratory, as well as follow-up heavy metal samples collected and analyzed by DOE. The data on hand does not demonstrate an immediate public health hazard with respect to drinking water quality in private wells. None of the wells sampled have levels of contaminants which represent acute health hazards. The Division of Health does not recommend that any of the private wells be abandoned or that any treatment to the drinking water be stipulated at this time.

However, there is an obvious potential for contamination of inorganic sources of drinking water. The soil and drum samples did have high levels of both heavy metals, as well as various synthetic organic contaminants. DSHS will reevaluate the public health significance of new water quality data as it becomes available. In addition, DSHS would like to review and comment on future DOE testing and sampling strategies which are designed to define the scope and significance of ground water and drinking water contamination. If it is determined that alternative methods of supplying drinking water to affected parties is appropriate, then DSHS will assist in the identification and implementation of appropriate solutions.

Dr. Sam Milham should be contacted (753-6408) if you or staff have questions regarding health effects of drinking water contamination or this recommendation.

Hazardous waste sites and all of the associated problems are new issues for all of us, the DOE, DSHS, local health departments, the public, and water purveyors. In order to facilitate timely and appropriate actions, DSHS

staff are preparing standard procedures for DSHS involvement in hazardous waste sites and incidents. The standard procedures will address DSHS activities to determine the health significance of contaminated drinking water and our role in determining the scope and significance of the contamination, and in facilitating appropriate solutions to mitigate situations of unsafe drinking water.

The department appreciates the opportunity to continue working with you and your staff on this important area of program coordination.

cc: Richard W. Bills, M.D.
Sam Milham, M.D.
Ken Merry

JOHN SPELLMAN
Governor

DONALD W. MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Mail Stop PV-11 • Olympia, Washington 98504 • (206) 459-6000

November 7, 1983

TO: Lynda L. Brothers

FROM: Ron Holcomb RH

SUBJECT: Tofdahl Drum Site

A coordination meeting regarding the Toftdahl Drum site (Clark County) was held on Monday, October 31, 1983. Representatives from WDOE (Headquarters and Southwest Regional Office), Department of Social and Health Services (DSHS), and the Southwest Washington Health District (SWHD) were present. EPA officials were invited but did not attend.

BACKGROUND

The meeting was held due to the nature of preliminary test results received from EPA. The test results include drinking water, surface water, soil, and drum samples. The preliminary findings indicate elevated levels of heavy metals—cadmium, chromium, cooper, lead--(drinking water, surface water, soil, drums), PCB's (drinking water, surface water, soil), PNA's (drinking water, surface water), and phthalates (soil, drums). Test results covering volatiles have not been received from EPA.

RECENT ACTION

EPA notified DSHS of the test results and contacted the residence (one family) that has PCP's in their well water.

CURRENT ACTION

As a result of the meeting, the following persons were designated with lead responsibilities:

Eric Egbers, WDOE -- Main Project Contact

Bill Liechty, DSHS -- Health Contact

Ron Holcomb, WDOE -- Media Contact

Rick Hall, WDOE -- Contracting

In addition, SWHD agreed to contact the other two residences that were affected. Those contacts were to be made during the first week in November.

It was also decided to proceed in arranging for a contractor to remove the drums from the site. A contractor could be selected and on site by November 28, 1983.

PENDING ACTION

The department is currently waiting to receive the final test results from EPA. Until we receive them, the department is not in a position to tell the media/public anything very specific other than "the preliminary test results indicate there may be a problem and as a precautionary measure, the three residences nearest the site have been advised not to drink their well water." Also, an "official" decision to utilize state funds to cleanup the site has not been made.

ANTICIPATED ACTIONS/ACTIVITIES

The following actions/activities are underway or planned:

* WDOE and DSHS will develop an expanded drinking water sampling program for other private wells in the area.
* DSHS will look into alternative drinking water sources for affected residents.
* DSHS will assess several health cases that may be related to the site.

When the decision is made to remove the drums, the following actions/activities will likely occur:

* Local officials, legislators, Governor's Office should be notified and briefed on the situation.
* News release announcing the test results and actions planned to be issued.
* Public meeting (Battle Ground) to explain the planned action.
* "Living room" briefing for affected residents.
* Determine how remedial investigation will be conducted.
* Update local officials, state officials, public, and news media throughout the project.

SITE HISTORY

Attached is a chronology of events regarding the Tofdahl site.

RH:la

cc: Earl Tower
John Littler
Rick Hall
Frank Monahan
Eric Egbers
Ats Kiuchi

TOFDAHL DRUM SITE, CLARK COUNTY
CHRONOLOGY OF EVENTS

NOVEMBER 1983

* WDOE notified that during March 1982 an earthen dam breached on a creek bordering the Toftdahl property. WDOE investigated for water quality problems (silt, fish kills, etc.). A property owner adjacent to the Toftdahl property ((b) (6)) told WDOE field personnel about buried drums on the Toftdahl property.

* On March 23, 1982, WDOE conducted a Resource Damage Assessment relative to the dam incident. (b) (6) who were in the process of buying the Toftdahl property, took WDOE personnel to drum burial site. Partially buried drums were observed.

* WDOE (Egbers) wrote a letter on May 27, 1982, to Ellis Toftdahl requesting information on the drums (how many, how were they bured, what were the contents, what was the condition of the drums, did he have any disposal permits, or if untrue). A response was requested by June 11, 1982.

* Toftdahl telephoned WDOE on June 2, 1982, and said he did bury some "trash" on his property. WDOE again requested a written response.

* No response received by November so another letter was written asking for an immediate response or the case would be turned over to EPA. Gave until December 15, 1982 for response. No response by that date.

* WDOE contacted EPA regarding the situation in January 1983.

* In March 1983, a (b) (6) told WDOE that his kids would sign witness statements stating that trucks came to the Toftdahl property. The trucks allegedly had Leichner Landfill markings. Mr. Leichner claimed he knew nothing about drums being taken to this site.

* EPA again contacted by WDOE in March 1983.

* EPA requested the Rededial Action Field Investigation Team to investigate. A "drive-by" investigation was conducted by Ecology & Environment in early March 1983.

* Later in March, a field inspection was conducted (metal detector, soil samples, surface water samples, and magnotometer).

* Also in March, a neighbor stated that in November of 1982 a truck and bulldozer were on the Toftdahl property and removed some of the barrels.

* Ecology & Environment reported on April 6, 1983 that a magnetic "anomaly" in 1,600 square foot area indicated the presence of buried metal.

* John Meyer, EPA, called Toftdahl to ask permission to go on site with a backhoe. Toftdahl gave verbal permission to come on site but said they wouldn't find anything because he removed the materials last winter.

* On July 20, 1983, Ecology & Environment uncovered six drums and prepared them for sampling. E & E also constructed a chain link fence around the site. During the excavation, Eric Egbers handled news media inquiries because no EPA personnel were present.

* On August 4, 1983, E & E excavated three additional barrels and took soil, drum, surface water and well water samples. WDOE again handled all media inquiries as no EPA officials were present. Samples were sent to the EPA lab in Manchester.

* In September 1983, WDOE indicated to EPA that the state would like to assume lead responsibility for the Toftdahl site. John Barich, EPA, was quoted on September 21, 1983, in the Battle Ground Reflector: "the state agency (WDOE) had been determined to have adequate laws, regulations, and staff to manage toxic waste problems. The state will use federal test results to pursue cleanup and penalties, as necessary."

* On October 10, 1983, WDOE wrote to Toftdahl stating that the agency is waiting for results from the sampling and again asked for information on the drums. No response has been received to date.

* Preliminary lab results provided to WDOE on Friday, October 28, 1983.

* Coordination meeting held on October 31, 1983, involving WDOE, DSHS, and Southwest Washington Health District.